



Amendment under 37 C.F.R. § 1.111
U.S. Serial No. 10/816,896

Attorney Docket No.: Q80898

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A device for wavefront measurement of an optical imaging system by means of a phase-shifting interferometry technique, the device comprising:

a mask structure (6) to be which is arranged on the an object side, and

a grating structure (7) to be which is arranged on the an image side,

wherein

the mask structure (6) to be which is arranged on the object side comprises one or more one-dimensional mask structure patterns (6a to 6e), and the grating structure to be arranged on the image side comprises one or more two-dimensional grating structure patterns (7a, 7b), or

wherein the mask structure comprises one or more two-dimensional mask structure patterns, and the grating structure comprises one or more one-dimensional grating structure patterns.

2. (currently amended): A method for wavefront measurement of an optical imaging system by means of a phase-shifting interferometry technique, the method comprising:

at least one of:

moving a phase-shifting structure (7) and a detector element (2) laterally relative to the optical imaging system (1) to be measured, and
moving an object-side mask structure (6) laterally relative to the detector element (2),

wherein

a pupil image offset occurring owing to the relative lateral movement is taken into account by back calculating the interferograms, wherein the interferograms are respectively recorded by the detector element, ~~in a way correcting the pupil position~~, using a phase-shifting characteristic associated with the lateral movement, or

wherein the pupil image offset is taken into account by a computational correction of wavefront derivatives, obtained from the recorded interferograms, in the direction of lateral movement.

3. (currently amended): The method according to Claim 2, wherein the computational correction of wavefront derivatives in the direction of lateral movement is performed using the relationship:

$$I^{(2)}(n) = \cos(S_x^{(1)} - \frac{\partial S_x^{(1)}}{\partial x} \frac{\Delta x(n-1)}{N} + \frac{2\pi(n-1)}{N}) \quad ,$$

which specifies the intensity values $I^{(2)}$ of individual detector element pixels as a function of the nth lateral phase shift with $S_x^{(1)}$ as errored wavefront derivative in the phase-shifting

direction, from which an error-corrected wavefront derivative ($S_x^{(2)}$) is then calculated, wherein
 N denotes a total number of phase steps.

4. (original): The method according to Claim 2, carried out with aid of a device according to Claim 1.

5. (original): The method according to Claim 3, carried out with aid of a device according to Claim 1.